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ABSTRACT

The administrative activity, including organization, staff, budget and external contacts, and the technical progress of IPS development, experimental service, workshops, documentation and related activities of the Center for Information Services (at the University of California, Los Angeles) are reported upon in this document. Pages 9 and 10 may be illegible.) (Related materials are available from the National Technical Information Service as PB 201 754 through PB 201 760 and were announced in GRA 71-18.) (SJ)

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CENTER FOR INFORMATION SERVICES

FOURTH QUARTERLY PROGRESS REPORT

PHASE IIB

DETAILED DESIGN AND PROTOTYPE DEVELOPMENT

1 OCTOBER 1971 TO 31 DECEMBER 1971

to

The National Science Foundation
Office of Science Information Services

Grant No. GN-827

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LI 003 926

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ADMINISTRATIVE ACTIVITY

ORGANIZATION

Project tasks proceeded as scheduled during the fourth quarter of Phase IIB of the CIS project with no significant changes in organizational structure or assignments of responsibility.

Establishment of a CIS Section

Plans drawn up for the establishment of a "CIS Section" within the UCLA Library Systems Department, initially consisting of a section head, Information Systems Librarian, and a secretary, were accepted by the Library's CIS Liaison Committee as the best present method of formalizing the Library's commitment to CIS.

Reacting to the committee's recommendation for early action, further plans have been made to add new staff in January 1972, with Peter Watson becoming section head at that time. He will report to the Head of the UCLA Library Systems Department who has overall responsibility for automation activities in the UCLA Library system.

Physical space for the CIS Section is expected to be available early in 1972.

STAFF

CIS project personnel for this quarter are listed in Figure 1 by organizational affiliation. Steven C. Farrell, an undergraduate student in Mathematics at UCLA, joined the project in October 1971. He will be doing utility programming and assisting with the operation of the experimental service.

BUDGET

The table in Figure 2 shows monthly expenditure rates and cumulative expenditures, both projected and actual, for the Phase IIB program during the first twelve months of operation.

EXTERNAL CONTACTS

Robert Carmichael participated in an ASIS-SLA week-end seminar and workshop held October 8-10, 1971 at Ventura on cost analysis techniques applied to library operations.

Jerry Lieblich and David Simonton of Global Engineering Documentation Services visited ILR on November 3, 1971 to discuss data base development for engineering standards and CIS development plans.

Ida Riordan attended the 1971 Annual Meeting of the American Society for Information Science (ASIS) in Denver on November 7-11, 1971. Prior to the meeting, she attended a tutorial on "Collecting and Reporting Real Costs of Information Systems", and a workshop on "The User Interface For Interactive Bibliographic Searching".

Linda Miroff and Aeint de Boer attended the 1971 ACM-SIGFIDET Workshop on Data Description, Access, and Control in San Diego on November 11-12, 1971. The workshop was concerned with the problems of data description and data privacy and integrity in generalized data base systems.

Neil Ludlam attended the 1971 Fall Joint Computer Conference in Las Vegas on November 16-18, 1971. He attended sessions on data base management and data security.

Robert Carmichael presented a CIS progress report to members of the University of California Library Council during a two day meeting, November 11-12, 1971 at UC Riverside; and to members of the University of California UNCLSTAF on December 6, 1971 at UC Irvine.

FIGURE 1

STAFF ASSIGNED

CAMPUS COMPUTING NETWORK

W. Kehl, Principal Investigator	10%
B. Briggs	100%
A. de Boer	100%
P. Donahoe	100%
S. Farrell	50%
W. Jordan	100%
N. Kolb	100%
N. Ludlam	100%
L. Miroff	100%
J. Pine	50%
I. Riordan	50%

UNIVERSITY LIBRARY

R. Vosper, Co-Investigator	10%
P. Watson	100%
S. Larson	50%

INSTITUTE OF LIBRARY RESEARCH

R. Carmichael, Co-Investigator	25%
D. Matthews	100%

GRADUATE SCHOOL OF LIBRARY SERVICE

H. Borko, Co-Investigator	10%

FIGURE 2

CIS Phase IIB	MONTHLY EXPENDITURE RATES*		CUMULATIVE EXPENDITURE RATES	
	Projected	Actual	Projected	Actual
January 1971	10,701	9,669	10,701	9,669
February	11,204	10,102	21,905	19,771
March	12,813	12,466	34,718	32,237
April	14,002	11,564	48,720	43,801
May	13,602	11,827	62,322	55,628
June	15,512	12,613	77,834	68,241
July	19,895	13,211	97,729	81,452
August	16,200	12,542	113,929	93,994
September	16,400	11,775	130,329	105,769
October	17,339	15,270	147,668	121,039
November	17,214	15,203	164,882	136,242
December	17,214	15,660	182,096	151,902
January 1972	22,713		204,809	
February	19,028		223,837	
March	18,678		242,515	
April	19,435		261,950	
May	19,235		281,185	
June	18,871		300,056	

*Includes 47% overhead on all salaries and 10% benefits on non-RA salaries.

TECHNICAL PROGRESS

IPS DEVELOPMENT

The emphasis this quarter was on completing the IPS prototype design and documentation. Five major areas required attention and are described below. Plans were made for the next phase of development, implementation of the prototype, which begins next quarter, and for related support activities.

IPS Control Blocks

Major modifications were made to the IPS control blocks to reflect changes in the IPS design that have evolved since the control blocks were originally defined. The revised design is described in the DCS document, "IPS Control Blocks". This document describes the descriptor table, dope vectors, parameter trees, symbol tables, and cross-reference tables.

IPS Monitor

A document describing the internal specifications of the IPS monitor was produced. It describes the basic monitor structure, IPS task management, user communication management, job workspace management, packet management, dynamic core management, job log management, installation statistics management, file management, disk space management, and monitor service requests.

IPS Analyzers

Modifications were also made to the design specifications for IPS analyzers. A DCS document was issued describing the basic structure of analyzers. This document includes a description of the collector and executor phases of the analyzer, and a description of the file data graph.

Prototype SDI Service

Major revisions were made to an earlier document which described the SDI Service and its subservices, Profile Load, Select, Sort, and Report. In addition, preliminary logic diagrams for the SDI Service were produced.

Input-Output

A major revision to an August, 1971 document containing I/O specifications was produced this quarter. The revised document describes the IPS access method, the data management services it provides, and the macro instructions necessary to use it within an IPS service program environment.

EXPERIMENTAL SERVICE

Ca-Condensates

The experimental service, which provides current awareness and retrospective searches of the CA-Condensates file, continued to grow this quarter. The operation ran quite smoothly, the only problems being caused by an occasional late delivery of the weekly tapes.

The data collected from the weekly runs that were made this quarter are tabulated in Figure 3. A comparison of averages for the last two quarters is shown in Figure 4.

Other Data Bases

Contract negotiations are underway with Engineering Index, Inc., for use of the COMPENDEX File. CIS expects to receive the monthly tapes beginning with the January 1972 issue.

WORKSHOPS AND CONFERENCES

On Thursday and Friday, November 4 and 5, 1971, at UCLA, a meeting took place between members of NSF Office of Science Information Services (OSIS), and representatives of the eight agencies presently receiving NSF-OSIS support in developing innovative information services for science and technology on university campuses. Being the first such meeting, it was devoted to identifying problems of mutual concern and exploring possible mechanisms for approaching their solution co-operatively. Names of those attending are given in Figure 5.

Although the proceedings were recorded on tape, the quality of the recording turned out to be poor and transcription has proved difficult. The attempt to obtain a full transcription for distribution to the attendees will be continued. Meanwhile, highlights of the two day agenda (Figure 6) are summarized below.

Figure 3

SUMMARY OF CA-CONDENSATES SEARCHES
OCTOBER - DECEMBER, 1971

ISSUE NUMBER	7514	7515	7516	7517	7518	7519	7520
DATE OF ISSUE	10/04	10/11	10/18	10/25	11/01	11/08	11/15
NUMBER OF ABSTRACTS	5461	4362	6048	5690	4989	3016	7438
NUMBER OF PROFILES	21	84	24	90	33	100	43
NUMBER OF CONCEPTS	109	489	129	525	191	591	246
NUMBER OF TERMS	495	2734	561	2995	899	3369	1168
NUMBER OF ALERTS	118	1019	168	1532	196	890	529
PROFILE UPDATE COST	2.75	11.53	2.48	11.87	5.15	13.15	6.55
CONVERSION TIME	43.80	34.32	47.82	43.06	40.75	23.96	59.26
I/O	2632	2182	2867	2736	2426	1599	3480
REGION(1)	200	200	200	200	200	200	200
SEARCH TIME	38.90	169.26	50.94	236.39	67.13	148.80	129.83
I/O	474	557	528	667	477	488	659
REGION	160	200	200	250	200	280	200
SORT-PRINT TIME	2.23	9.86	2.92	14.14	3.06	8.87	5.78
I/O	2272	7008	2570	9127	2721	6868	4292
REGION(1)	72	110	110	100	110	128	110
PAGES(2)	188	1140	232	1478	400	288	570
COST(3) : CONVERSION	14.16	11.45	15.43	14.35	13.13	9.29	18.94
SEARCH	7.08	26.39	9.00	36.54	11.22	23.20	20.92
SORT-PRINT	8.85	33.35	10.27	43.55	12.40	24.27	19.10
TOTAL(4)	30.09	71.19	34.70	94.44	36.75	55.76	58.96
CONCEPTS/PROFILE	5.19	5.82	5.38	5.83	5.79	5.91	5.72
TERMS/PROFILE	23.57	32.55	23.38	33.28	27.24	33.69	27.16
COST/PROFILE	1.43	0.85	1.45	1.05	1.11	0.56	1.37
COST/TERM	0.06	0.03	0.06	0.03	0.04	0.02	0.05
ALERTS/PROFILE	5.62	12.13	7.00	17.02	5.94	8.90	12.30
CONV.TIME/ABSTRACT	0.0080	0.0079	0.0079	0.0076	0.0082	0.0079	0.0080
CONV.COST/ABSTRACT	0.0026	0.0026	0.0026	0.0025	0.0026	0.0027	0.0025
SEARCH TIME/PROFILE	1.85	2.02	2.12	2.63	2.03	1.49	3.02
SEARCH COST/PROFILE	0.34	0.31	0.38	0.41	0.34	0.23	0.49
SORT-PRINT TIME/ALERT	0.0189	0.0097	0.0174	0.0092	0.0156	0.0100	0.0109
SORT-PRINT COST/ALERT	0.0750	0.0327	0.0611	0.0284	0.0633	0.0273	0.0361

(1)...*CONVERSION AND SORT-PRINT ARE MORE THAN ONE STEP, THEREFORE REGION SIZE IS APPROXIMATE.*
(2)...*SORT-PRINT COST INCLUDES $0.01 PER PAGE; TWO COPIES OF THE OUTPUT ARE PRINTED.*
(3)...*COST IS CALCULATED AT $0.11 PER MUS, WHERE MUS = (T+0.02×I)×(1+.003×MIN(R,250)+.0004×R).*
THESE COSTS REFLECT THE OVERNIGHT RATE, WHICH CALCULATES MUS WITH R=82.5K.
(4)...*TOTAL ISSUE RUN COST = CONVERSION COST + SEARCH COST + SORT-PRINT COST.*

Figure 3 Continued

SUMMARY OF CA-CONDENSATES SEARCHES
OCTOBER - DECEMBER,1971

ISSUE NUMBER	7521	7522	7523	7524	7525	7526
DATE OF ISSUE	11/22	11/29	12/06	12/13	12/20	12/27
NUMBER OF ABSTRACTS	4030	6692	4328	6412	4481	5898
NUMBER OF PROFILES	115	51	121	57	127	57
NUMBER OF CONCEPTS	694	270	677	309	815	309
NUMBER OF TERMS	3736	1258	3756	1412	4022	1412
NUMBER OF ALERTS	1272	823	1359	551	1474	480
PROFILE UPDATE COST	8.76	3.47	8.22	8.33	10.54	0.00
CONVERSION TIME	31.98	54.20	34.34	54.73	35.88	51.38
I/O	2051	3178	2167	3123	2227	2957
REGION(1)	200	200	200	200	200	200
SEARCH TIME	209.75	130.88	228.30	135.26	242.49	123.78
I/O	585	630	627	642	665	633
REGION	280	200	200	200	280	200
SORT-PRINT TIME	11.92	7.28	13.35	6.17	14.10	6.15
I/O	8553	5578	9056	4625	9592	4491
REGION(1)	130	110	120	110	120	110
PAGES(2)	1508	790	1592	670	1650	640
COST(3) : CONVERSION	10.73	17.23	11.43	17.21	11.82	16.27
SEARCH	32.40	20.99	35.24	21.67	37.42	19.96
SORT-PRINT	41.85	25.29	44.37	21.14	46.63	21.12
TOTAL(4)	84.98	63.51	91.04	60.02	95.87	57.35
CONCEPTS/PROFILE	6.03	5.29	5.60	5.42	6.42	5.42
TERMS/PROFILE	32.49	24.67	31.04	24.77	31.67	24.77
COST/PROFILE	0.74	1.25	0.75	1.05	0.75	1.01
COST/TERM	0.02	0.05	0.02	0.04	0.02	0.04
ALERTS/PROFILE	11.06	16.14	11.23	9.67	11.61	8.42
CONV.TIME/ABSTRACT	0.0079	0.0081	0.0079	0.0085	0.0080	0.0087
CONV.COST/ABSTRACT	0.0027	0.0026	0.0026	0.0027	0.0026	0.0028
SEARCH TIME/PROFILE	1.82	2.57	1.89	2.37	1.91	2.17
SEARCH COST/PROFILE	0.28	0.41	0.29	0.38	0.29	0.35
SORT-PRINT TIME/ALERT	0.0094	0.0088	0.0098	0.0112	0.0096	0.0129
SORT-PRINT COST/ALERT	0.0329	0.0307	0.0326	0.0384	0.0315	0.0440

(1)...CONVERSION AND SORT-PRINT ARE MORE THAN ONE STEP, THEREFORE REGION SIZE IS APPROXIMATE.
(2)...SORT-PRINT COST INCLUDES $0.01 PER PAGE; TWO COPIES OF THE OUTPUT ARE PRINTED.
(3)...COST IS CALCULATED AT $0.11 PER MUS, WHERE MUS = (P+0.02×I)×(1+.0036×MIN(P,250)+.0004×P).
THESE COSTS REFLECT THE OVERNIGHT RATE, WHICH CALCULATES MUS WITH P=82.5.
(4)...TOTAL ISSUE RUN COST = CONVERSION COST + SEARCH COST + SORT-PRINT COST.

Figure 4

CA-CONDENSATES SEARCHES

CUMULATIVE AVERAGES

	JULY-SEPT.	OCT.-DEC.
ABSTRACTS/ISSUE	6828.6	5295.8
PROFILES/ISSUE	40.5	71.0
CONCEPTS/ISSUE	227.7	411.8
TERMS/ISSUE	1154.9	2139.8
ALERTS/ISSUE	566.2	800.8
PROFILE UPDATE COST/ISSUE	5.89	7.14
RUN COST/ISSUE: CONVERSION	17.27	13.88
SEARCH	16.81	23.23
SORT-PRINT	20.04	27.09
TOTAL	54.12	64.21
COST/PROFILE	1.34	0.90
COST/TERM	0.05	0.03
ALERTS/PROFILE	13.90	11.28
CONV.COST/ABSTRACT	0.0025	0.0026
SEARCH COST/PROFILE	0.42	0.33
SORT-PRINT COST/ALERT	0.04	0.03

Figure 5

ATTENDEES

National Science Foundation

Mr. Mel Day
Dr. Ed Weiss

University of Georgia

Dr. Jim Carmon
Dr. Charles Douglas
Miss Margaret Park

Lehigh University

Dr. Don Hillman

University of Pittsburgh

Prof. Allen Kent

The Ohio State University

Prof. Gerald Lazorick

Stanford University

Prof. Ed Parker
Mr. Hank Epstein
Mr. Dave Phillips
Mr. John Schroeder
Mr. David Weber

University of Washington

Prof. Peter Rohn

Illinois Institute of Technology, Research Institute

Miss Martha Williams
Mr. Peter Schipma

Figure 5 Continued

University of California, Los Angeles (CIS Project)

Mr. William Kehl
Mr. Robert Vosper
Prof. Hal Borko
Mr. Robert Carmichael
Mr. Peter Watson
Mr. Bruce Briggs
Dr. Robert Hayes
Mr. Aeint de Boer
Mr. Pete Donahoe
Mr. William Jordan
Mr. Neil Ludlam
Mrs. Linda Miroff
Mrs. Ida Riordan

University of California

Dr. Albert Barber, Los Angeles
Mr. Barry Beckerman, Los Angeles
Mr. Charles Bourne, Berkeley
Mr. Bob Braden, Los Angeles
Miss Louise Darling, Los Angeles
Mr. Roy Fry, Los Angeles
Mr. Tony Hall, Los Angeles
Dr. Lorraine Mathies, Los Angeles
Mr. Paul Miles, Los Angeles
Mr. Tom Riedel, Los Angeles
Miss Mary Ryan, Los Angeles
Miss Anita Schiller, San Diego
Mrs. Joanna Tallman, Los Angeles
Mr. Donald Wilson, Library Council, Riverside

University of Maryland

Mr. Hal Olson

Institute for Scientific Information

Mr. Mel Weinstock

Figure 6

West Coast Meeting of NSF OSIS Grantees
A G E N D A
Nov. 4 - 5, 1971

THURSDAY

9:15	Transportation from motel to UCLA	
9:30	Coffee, introductions, etc.	Sierra Room, Faculty Center
9:45	Introductory remarks	
10:00	Stanford presentation	
11:00	University of Wasington presentation	
12:00	LUNCH	Dining Room C, Faculty Center ($2.25/person)
1:30	UCLA presentation	Sierra Room, Faculty Center
2:30	BREAK	
2:45	Networking - Technical Issues ARPANET Remote Terminals Other Alternatives	
4:15	ADJOURN	
4:30	CCN Tour and Demonstration	Campus Computing Network
7:30	Round Table Discussion Sharable Resources Administrative Issues	Buenos Aires Room, Sunset Canyon Recreation Center
10:00	ADJOURN	

FRIDAY

8:30	Presentation by ISI	Sierra Room, Faculty Center
9:15	Planning Session Summary of discussions Future plans	
10:45	BREAK	
11:00	NSF meeting with grantees	
12:15	ADJOURN	

Thursday, November 4, 1971

After introductory remarks by Vice Chancellor Barber of UCLA and W. B. Kehl, the three west coast agencies gave presentations covering the origins, basic goals, present status, and future directions of their respective projects. E. Parker and J. Schroeder (Stanford) first discussed SPIRES/BALLOTS. Parker outlined their aim of acting as an "information retailer" mediating large and frequently complex files of information to users with highly specialized individual information requirements, and of the prime place given to development of on-line capabilities for SPIRES/BALLOTS. SPIRES II, the first operational version, is designed to become active in mid-1972. Schroeder then gave details of the system's capabilities, in terms of the hardware environment, file building , file manipulation, and searching, and outlined its relation to other computational activities at Stanford.

P. Rohn (Univ. of Washington) next discussed in similar detail his Treaty Information Project. This had its origin in one person's perception of a large gap in the management of legal information, namely international treaties. Condensed information regarding the 15,000-18,000 such treaties signed since 1920 is being encoded for machine manipulation, to be available to the community of scholars, lawyers, diplomats, and others working in this field.

After lunch, UCLA's CIS staff reported on their project. P. Watson outlined the broad implications of having the ultimate responsibility for acquiring data bases and making them available to a campus community rest with the library. He pointed to their experience so far in mounting trial services through UCLA Library units from CA-Condensates, and the project's technical assistance with ERIC and Census tapes. R. B. Briggs followed up with a presentation on technical aspects of CIS development; the interim software used for experimental services, and the specification and design of general purpose programs for the operational CIS system.

The group then heard R. T. Braden of UCLA's Campus Computing Network describe the ARPA network of major research computers in the U.S. This communication network enables the sharing of outstanding national resources in such areas as software and large core capacity; hardware assets such as the developing trillion-bit store and the ILIAC-4 computer; and large or specialized data bases. ARPANET is not yet fully operational, but many of the protocols for the various types and levels of communication are complete, and such activities as transmitting a program for submittal to another computer in the system are already being carried on.

Thursday evening was devoted to an informal discussion among the group about specific proposals for additional co-operation between centers. While the ARPANET represents the sophisticated end of the spectrum, a wide range of more mundane, but realizable, goals (e.g., sharing statistics, newsletters, etc.) also was explored. A particularly important point that began to emerge from the day's discussions was concern over the impact of these new methods (of getting information about documents) upon the library if they are called upon to deliver the actual documents.

Friday, November 5, 1971

The Principal Investigators and the NSF representatives met to continue discussion of the issues raised the previous day. Again the linking of computerized bibliographic services to document delivery systems formed a main talking point. M. Day (NSF) delineated the role of NSF in these developments, and pointed out that the academic segment of the information community, as represented at the meeting, was a basic component in a potential nationwide network. He said that NSF would in the future be paying more attention to science communication as an integrated whole. He closed with a review of the recent UNISIST meeting.

DOCUMENTATION

The current list of documents in the Document Control System (DCS) is given in Figure 7. Copies of these documents are available upon request with the understanding that they are working papers and are subject to change.

RELATED ACTIVITIES

ERIC

The Education-Psychology library will resume offering current awareness and retrospective search service during the next quarter. A conversion program has been written to convert the ERICTAPES format to the TEXT-PAC format. The service will resume as soon as the updates to the file arrive. Searches will be made using the TEXT-PAC system.

CAIN

Dr. Ed Jestes, Library Systems and Automation Coordinator at the University of California at Davis (UCD) visited the CIS Project on December 27 and 28, 1971. A successful test run was made using TEXT-PAC to search a sample CAIN tape. Fifteen profiles prepared by Dr. Jestes were used for the search.

Figure 7

CURRENT IPS WORKING DOCUMENTS

Title	No.
The CIS IPS Prototype, Version 0	CPD001
First Implementation of IPS Commands	CPD002
IPS Control Blocks	CPD003
Programming Standards and Conventions	CPD004
The CIS IPS Prototype Design	WJJ001
SDI Service For the IPS Prototype	WJJ002
CIS Document Control System	HCL002
Preliminary SDI Logic Diagrams	HCL004
Summary of TSO Programming Guide	HCL005
The IPS Monitor-Internal Specifications	HCL006.01
Basic Structure of CIS Analyzers	HCL007.01
SDI Analyzer Logic	HCL008
Guide to Preparing TEXT-PAC Profiles	LJM001

Beginning in January, an experimental service from the CAIN file will be offered with service to users being provided through the UCD Library and the computer processing being done at UCLA. The service will be made available to all interested persons.

Census

As reported in the last quarterly report, the UCLA Library has available for use the First Count 1970 U. S. Census computer tapes. The tapes were acquired from DUALABS (National Data Use and Access Laboratories, Inc.) of Arlington, Virginia, and are in a compressed format. A set of programs for processing the data was also acquired from DUALABS.

The Public Affairs Service of the library is the contact point. Both Census Bureau and DUALABS documentation are available there and, in addition, a specialized Census tape reference service is provided daily. Access to the tapes is controlled by a data set security system developed by CIS. CIS has also provided assistance in installing the DUALABS programs at CCN.